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EXAMINER	
PHAM, CHRYSTINE	

ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/964,237	BATES ET AL.	
	Examiner	Art Unit	
	Chrystine Pham	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the Amendment filed on January 28th 2005. Claims 1, 5, 9, 14, and 21 have been amended. Claims 1-25 are presented for examination.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 4, 5, 9, and 14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4, 5, 8-11, 14, 17, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Mann (*Mann*, US 6154857).

Claim 1

Mann teaches *a system* (see at least FIG.1 & associated text), *a method of debugging an application in a debugging environment comprising the application* (see at least *debugging, software products* col.1:14-48; *program, selected procedure* col.2:35-67) *and a debugger program* (see at least *102, 112, 100* FIG.1 & associated text; FIG.2 & associated text) *contained in a computer readable medium or memory* (see at least *218* FIG.2 & associated text), *when executed by a computer configured with an application being debugged during a debug session, performs breakpoint counter operations* (see

at least *219b* FIG.2 & associated text; *219b* FIG.6A & associated text; *trigger control registers 219, breakpoint registers, second trigger control register 219b, second counter* col.13:37-col.14:55), *the method* (i.e., debug program) *comprising:*

- *counting instructions* (i.e., processor) *for automatically counting a number of times* (i.e., associating a breakpoint-specific counter with) *each breakpoint located in the application code segment is encountered while the application is executing during a test run* (see at least *219b* FIG.2 & associated text), *wherein the number is increasing* (see at least *second counter* col.13:37-col.14:55) *and, at any time during the test run* (see at least *test runs* col.13:37-col.14:55), *always reflects a current number of times a given breakpoint has been encountered during the test run and wherein counting the number is not limited by a predetermined number representative of a desired number of encounters of the given breakpoint* (see at least *second counter, frequency of occurrence of procedure of interest* col.13:37-col.14:55); *and*
- *storing instructions for the number* (i.e., counter value) *for each breakpoint in a memory space for use in a subsequent run* (i.e., execution of application) (see at least *200* FIG.2 & associated text; *second counter value, trace cache 200, test runs* col.13:37-col.14:55).

Claim 4

The rejection of base claim 1 is incorporated. *Mann* further teaches *wherein automatically counting comprises, for each breakpoint:*

- *incrementing a breakpoint-specific counter each time a breakpoint associated with the breakpoint-specific counter is encountered in a particular code segment* (see at least *second counter, frequency of occurrence of procedure of interest* col.13:37-col.14:55); *and*
- *resetting the breakpoint-specific counter each time the code segment is entered* (see at least *second counter, reset, stop trigger event* col.13:37-col.14:55).

Claim 5

Claims recites a computer readable medium containing a debug program performing the method addressed in claims 1, and 4, therefore, is rejected for the same reasons as cited in claims 1, and 4.

Claim 8

The rejection of base claim 5 is incorporated. Claim recites limitations which have been addressed in claim 4, therefore, is rejected for the same reasons cited in claim 4.

Claims 9-10

Claims recite limitations which have been addressed in claims 1, and 4, therefore, are rejected for the same reasons cited in claims 1, and 4.

Claim 11

The rejection of base claim 9 is incorporated. *Mann* further teaches *wherein resetting the counter comprises firing an internal breakpoint which does not call a user interface* (see at least *trigger control registers 219, trigger signal TRIG* col.13:50-67; *trigger signal TRIG, internal processor breakpoint* col.6:40-67).

Claim 14

Claim recites a computer readable medium containing a debug program performing the method addressed in claims 1, and 4, therefore, is rejected for the same reasons as cited in claims 1, and 4.

Claim 17

The rejection of base claim 14 is incorporated. Claim recites limitations which have been addressed in claim 1, therefore, is rejected for the same reasons cited in claim 1.

Claim 18

The rejection of base claim 14 is incorporated. *Mann* further teaches *wherein the debug program further comprises internal breakpoint setting instructions for setting an internal breakpoint configured to reset the counter without calling a user interface when the internal breakpoint is fired* (see at least *trigger control registers 219, trigger signal TRIG* col.13:50-67; *trigger signal TRIG, internal processor breakpoint* col.6:40-67; *trigger signal TRIG, internal breakpoints* col.4:39-67).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2, 3, 6, 7, 13, 16, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Mann* in view of Phillips et al. (*Phillips et al.*, US 5321828).

Claim 2

The rejection of base claim 1 is incorporated. *Mann* does not expressly disclose *while the application is stopped, receiving a user-input request to uninterruptedly execute the application until a user-specified breakpoint is encountered some number of times, where N is a stored number of times the user-specified breakpoint was encountered during the test run and X is a value equal to or greater than zero.*

However, *Phillips et al.* teach *while the application is stopped, receiving a user-input request to uninterruptedly execute (by execution instructions) the application until a user-specified breakpoint* (see at least col.28:44-45) *is encountered some number of times* (i.e., breakpoint-specific counter value has reached or is equal to a user-specified value), *N-X* (or Y), *where N is a stored number of times the user-*

specified breakpoint was encountered during the test run and X is a value equal to or greater than zero (see at least *disabling breakpoints*, *condition<bnum><expression>, "ignore <count>"* col.28:1-67). *Mann* and *Phillips et al.* are analogous art because they are directed to software debugging. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of *Phillips et al.* into that of *Mann* for the inclusion of receiving user-input request to uninterruptedly execute the application until a user-specified breakpoint is encountered some number of times (i.e., disabling breakpoints). And the motivation for doing so would have been to allow the user to control whether or not the application will stop [at a specified breakpoint] without having to clear or delete breakpoints. Information on the disabled breakpoints are stored for subsequent retrieval and processing by the user, thus improving the overall debugging process (see *Phillips et al.* col.26:38-46; col.27:40-45; col.28:1-8).

Claim 3

The rejection of base claim 1 is incorporated. *Phillips et al.* further teach *after the application is stopped or halted at a location in response to a last breakpoint encounter of a particular breakpoint encountered Y number of times at the last breakpoint encounter* (i.e., breakpoint-specific counter value is determined to have reached or be equal to a user-specified value) (see command col.28:50-col.29:18, col.29:26-30), *receiving a user-input request to uninterruptedly execute the application until the application is again stopped at the location in response to encountering the particular breakpoint Y number of times* (see claim 2).

Claims 6-7, 13

Claims recite limitations, which have been addressed in claims 1-3, therefore, are rejected for the same reasons as cited in claims 1-3.

Claims 16, 20

Claims recite limitations, which have been addressed in claims 1-3, 11, therefore, are rejected for the same reasons as cited in claims 1-3, 11.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Mann* further in view of Ishida (US 5367550), hereinafter, *Ishida*.

Claim 15

The rejection of base claim 14 is incorporated. *Mann* does not expressly disclose *wherein the code segment is one of a routine and a loop*. However, *Ishida* teaches *a method of debugging a program* (e.g., see Abstract) wherein a breakpoint-specific counter is associated with the breakpoint in a code segment of the program and *the code segment of the program is one of a routine and a loop* (e.g., see stop count CVstop REGISTER 1b, COUNTER 3b FIG.2 & associated text, see loop instruction col.4:23-40). *Mann* and *Ishida* are analogous art because they are both directed to debugging software applications. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Ishida* into that of *Mann* for the inclusion of a loop in the program's routine. And the motivation for doing so would have been to facilitate the halting of the program's execution only after a certain instruction (i.e., inside a loop) has been executed a desired number of times, thereby, making the debugging process more efficient.

8. Claims 12, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Mann* in view of *Phillips et al.* further in view of Peri et al. (US 6182208), hereinafter, *Peri et al.*.

Claim 12

The rejection of base claim 9 is incorporated. *Mann* as modified by *Phillips et al.* further teach

- *determining whether a counter value of the counter has reached a user-specified value and* (see claim 3)
- *if so, halting execution of the application* (see claim 3). *Mann as modified by Phillips et al.* do not expressly disclose *issuing a user notification indicative of the counter value.*

However, *Peri et al.* teach a method of debugging an application, halting execution of the application upon encountering a breakpoint and *issuing a user notification indicative of the counter value* (e.g., see message and routines col.5:19-32). *Mann*, *Phillips et al.* and *Peri et al.* are analogous art because they are directed to debugging software applications. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Peri et al.* into that of *Mann* and *Phillips et al.* for the inclusion of user notification. And the motivation for doing so would have been to allow the user to examine or analyze the state of the program as part of the debugging process prior to encountering the breakpoint.

Claim 19

The rejection of base claim 14 is incorporated. Claim recites limitations, which have been addressed in claim 12, therefore, is rejected for the same reasons as cited in claim 12.

9. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Mann* in view of Beckett (US4080650), hereinafter, *Beckett*.

Claim 21

Mann teaches *a computer system, comprising:*

- *a memory containing content comprising at least a debug program to implement a debug session, an application for debugging* (see claim 1)*; and*
- *a processor which, when executing at least a portion of the content during the debug session, is configured to:*
- *associate a breakpoint-specific counter with a breakpoint and with at least one application code segment in which the breakpoint is located* (see claim 4)*;*
- *increment the counter each time the breakpoint is encountered* (see claims 1, 4)*; and*
- *reset the counter each time the application code segment is entered* (see claim 4).

Mann does not expressly disclose *a breakpoint table configurable with breakpoint-specific counters.*

However, *Beckett* teaches a method of debugging an application wherein *a breakpoint table is configurable with breakpoint-specific information* (e.g., see breakpoint table col.1:50-60). *Mann* and *Beckett* are analogous art because they are both directed to debugging software applications. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Beckett* into that of *Mann* for the inclusion of a breakpoint table storing breakpoint-specific counters disclosed by *Mann.* And the motivation for doing so would have been to facilitate the reading of a first word of a breakpoint-related instruction directly from the breakpoint table, which is then executed as if it has been obtained from its original memory location in the program. This further enables additional words of the instruction to be obtained directly from their normal memory locations in the program thus eliminating the need to provide a reference table in memory for instruction lengths.

Claims 22-23

The rejection of base claim 21 is incorporated. Claims recite limitations which have been addressed in claims 1, 3, 18, therefore, are rejected for the same reasons as cited in claims 1, 3, 18.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Mann* in view of *Beckett* further in view of *Phillips et al.*.

Claim 24

The rejection of base claim 21 is incorporated. Claim recites limitations which have been addressed in claim 3, therefore, is rejected for the same reasons cited in claim 3.

11. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Mann* in view of *Beckett* further in view of *Peri et al.*.

Claim 25

The rejection of base claim 22 is incorporated. Claim recites limitations, which have been addressed in claim 12, therefore, is rejected for the same reasons as cited in claim 12.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chrystine Pham whose telephone number is 571-272-3702. The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CP
May 13, 2005

TUAN DAM
SUPERVISORY PATENT EXAMINER